

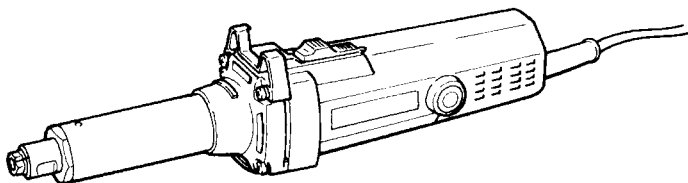


HITACHI

PORTABLE GRINDER

MODEL GP 2

INSTRUCTION MANUAL



Note

Before using this Electric Power Tool, carefully read through this INSTRUCTION MANUAL to ensure efficient, safe operation. It is recommended that this MANUAL be kept readily available as an important reference when using this power tool.



DOUBLE INSULATION

We sincerely thank you for selecting a HITACHI ELECTRIC POWER TOOL. To operate this electric power tool safely and efficiently, please read this INSTRUCTION MANUAL carefully to get a good understanding of the precautions in operation, capacity of the electric power tool, use and the like.

IMPORTANT INFORMATION: SAFETY RULES FOR POWER TOOLS

WARNING: When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following.

READ ALL INSTRUCTIONS

- 1. KEEP WORK AREA CLEAN.** Cluttered areas and benches invite injuries.
- 2. CONSIDER WORK AREA ENVIRONMENT.**
 - Don't expose power tools to rain.
 - Don't use power tools in damp or wet locations.
 - Keep work area well lit.
 - Don't use tool in presence of flammable liquids or gases.
 - Power tools produce sparks during operation. They also spark when switching ON/OFF. Never use power tools in dangerous sites containing lacquer, paint, benzine, thinner, gasoline, gases, adhesive agents, and other materials which are combustible or explosive.
- 3. GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces. For example; pipes, radiators, ranges, refrigerator enclosures.
- 4. KEEP CHILDREN AWAY.** Do not let visitors contact tool or extension cord.
 - All visitors should be kept away from work area.
- 5. STORE IDLE TOOLS.** When not in use, tools should be stored in dry, and high or locked-up place-out of reach of children.
- 6. DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was intended.
- 7. USE RIGHT TOOL.** Don't force small tool or attachment to do the job of a heavy-duty tool.
 - Don't use tool for purpose not intended.
- 8. DRESS PROPERLY.** Do not wear loose clothing or jewelry. They can be caught in moving parts.
 - Rubber gloves and none-skid footwear are recommended when working outdoors.
 - Wear protective hair covering to contain long hair.
- 9. USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty.
 - All persons in the area where power tools are being operated should also wear safety eye protectors and face or dust masks.
- 10. DON'T ABUSE CORD.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.

11. **SECURE WORK.** Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safer performance.
Follow instructions for lubricating and changing accessories.
Inspect tool cords periodically and if damaged, have repaired by authorized service facility.
Inspect extension cords periodically and replace if damaged.
Keep handles dry, clean, and free from oil and grease.
14. **DISCONNECT TOOLS.** When not in use, before servicing, and when changing accessories, such as blades, bits, cutters.
15. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. **AVOID UNINTENTIONAL STARTING.** Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugging in.
17. **OUTDOOR USE EXTENSION CORDS.** When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
18. **STAY ALERT.** Watch what you are doing. Use common sense. Do not operate tool when you are tired.
19. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual.
Have defective switches replaced by authorized service center.
Do not use tool if switch does not turn it on and off.
20. **AVOID USING A POWER TOOL FOR APPLICATIONS OTHER THAN THOSE SPECIFIED.** Never use a power tool for applications other than those specified in the instruction manual.
21. **ENSURE SAFE OPERATION THROUGH CORRECT HANDLING.** Secure safe operation through correct handling by observing the instructions described herein.
Do not employ accessories other than those specified herein; otherwise, a hazardous condition may be created.
Never allow a power tool to be used by persons not familiar with correct handling (such as children) or by those who cannot handle the tool correctly.
22. **CONFIRM THAT NO ITEMS SUCH AS AN ELECTRIC CABLE OR CONDUIT ARE BURIED INSIDE.** In places where live wiring may be hidden behind a wall, floor, ceiling, etc. do not hold or contact any metal parts of the tool. In such cases, metal parts could become electrically live and present a serious shock hazard.

- 23. KEEP THE RIGHT PARTS IN THE RIGHT POSITIONS.** Do not remove covers and screws which have been factory-mounted. They perform important respective roles. Keep them in the right positions.
- 24. SHOULD THE PLASTIC HOUSING OR HANDLE OF A POWER TOOL BE CRACKED OR DEFORMED, DO NOT USE IT.** Since cracked or deformed parts may lead to an operator receiving an electric shock, do not use such a power tool. Immediately have it repaired.
- 25. SECURELY MOUNT ACCESSORIES AND BLADES TO THE TOOL MAIN BODY.** Extra care must be taken when using tools on elevated location (such as a roof ladder, scaffold, or the like) to prevent injury to someone on a lower level in the event the tool and/or accessory should drop.
- 26. ALWAYS KEEP THE MOTOR AIR VENT FULLY OPENED.** A constantly open motor air vent is necessary to allow air to come in and out for cooling the motor. Do not allow it to become clogged up, even if dust is blown through it.
- 27. OPERATE POWER TOOLS AT THE RATED VOLTAGE.** Operate power tools at voltages specified on their nameplates.
- 28. NEVER TOUCH THE MOVING PARTS.** Never touch the moving parts such as blades, bits, cutters and others.
- 29. STOP OPERATION IMMEDIATELY IF ANY ABNORMALITY IS DETECTED.** Should a power tool be detected as out of order or should other abnormalities be observed during operation, stop using the tool immediately.
- 30. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.
- 31. CAREFULLY HANDLE POWER TOOLS.** Should a power tool be dropped or struck against hard materials inadvertently, it may be deformed, cracked, or damaged.
- 32. DO NOT WIPE PLASTIC PARTS WITH SOLVENT.** Solvents such as gasoline, thinner, benzene, carbon tetrachloride, and alcohol may damage and crack plastic parts. Do not wipe them with such solvents. Wipe plastic parts with a soft cloth lightly dampened with soapy water.
- 33. WHEN REPLACING A COMPONENT PART, ADOPT THE SAME TYPE.** When replacing a component part with a new one, adopt the same type of new part. Also, never attempt to repair a power tool yourself.
- 34. SAVE THESE INSTRUCTIONS**

SERVICE AND REPAIRS

All quality tools will eventually require servicing or replacement of parts due to wear from normal use. These operations should **ONLY** be performed by an **AUTHORIZED HITACHI POWER TOOL REPAIR SHOP**.

REPLACEMENT PARTS

When servicing use only identical replacement parts.

DOUBLE INSULATION SYSTEM ENHANCES SAFE OPERATION

To enhance safe operation of this electric power tool, HITACHI has adopted a double insulation system. The term "double insulation" used here denotes an insulation system with two insulations physically separated and arranged between the electrically conductive material connected to the power supply and the outer frame subject to contact by the operator.

Thus, the power tool is termed double insulated and both the "□" mark and "Double insulation", or either one is indicated on the name plate.

While no external grounding is required with this system, normal safety precautions as outlined in this manual must still be followed. To maintain the effectiveness of the double insulation system, follow the precautions described below:



DOUBLE INSULATION

1. Always contact your dealer or an authorized HITACHI service agent when assembling, disassembling or replacing parts other than accessories or carbon brushes. Improper assembly and/or replacement with wrong parts may result in eliminating the double insulation-feature.
2. Clean the exterior of the tool with a soft cloth moistened with soapy water, and dry thoroughly. Chloric solvent, gasoline, and thinner will cause plastic components to dissolve.

NAME OF PARTS

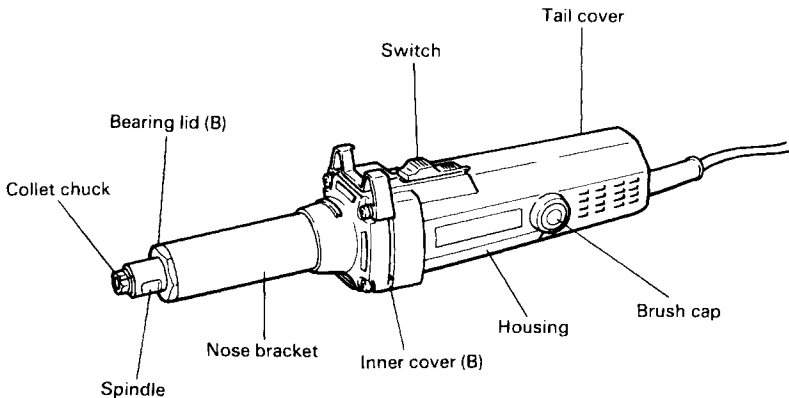


Fig. 1

SPECIFICATIONS

Motor	:	Single-Phase, Series-Commutator Motor
Power Source	:	Single – Phase 115V AC 60 Hz
Current	:	4.7A
No - Load Speed	:	25000 rpm
Max. Wheel Diam.	:	1"
Collet Chuck Capacity	:	1/4"
Weight	:	4.3 lbs.

ACCESSORIES

CAUTION:

Recommended accessories for this Electric Power Tool are mentioned in this manual.
The use of any other attachment or accessory might be hazardous.

STANDARD ACCESSORY

(1) Wrench (43/64") (Code No.936638)	1
(2) Wrench (15/32") (Code No.936553)	1

OPTIONAL ACCESSORIES (Sold Separately)

- Collet chuck (for 1/8" shaft)
Dimensions and handling methods other than the shaft hole are the same as those for the 1/4" collet chuck.
- Case

APPLICATION

- Finishing of dies for press working, die casting and moulding.
- Finishing of thread cutting dies, tools and other small parts.
- Internal grinding of tools and machine parts.

PRIOR TO OPERATION

- 1. Power source**
Ensure that the power source to be utilized conforms to the power requirements specified on the product nameplate.
- 2. Power switch**
Ensure that the power switch is in the OFF position. If the plug is connected to a power receptacle while the power switch is in the ON position, the power tool will start operating immediately, inviting serious accident.
- 3. Extension cord**
When the work area is removed from the power source, use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.
- 4. Confirming the power receptacle**
If the power receptacle only loosely accepts the plug, the receptacle must be repaired. Contact the nearest electric store for repair service.
If such a faulty receptacle is used, it may cause overheating, resulting in a serious hazard.
- 5. Confirming condition of the environment**
Confirm that the work site is placed under appropriate conditions confirming to prescribed precautions.

6. Installing a wheel

Install a wheel so that length ℓ is less than 1/2". If ℓ is longer, abnormal vibration will occur, and the machine is not only negatively affected, but there is a possibility of a serious accident.

Make the ℓ as small as possible.

When $d = 1/4"$, D of the wheel should be less than 1". If a wheel with D more than 1" is used, the circumference speed exceeds the safety limit and the wheel will break. Never use such a wheel.

Distance L varies for D . Determine L referring to the table below.

When $d = 1/8"$,

D should be less than 3/8". Determine L referring to the table below.

(When $\ell = 1/2"$)

d \ D	1/8"				1/4"			
D	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
L	1/2"	3/4"	3/4"	3/4"	1-1/2"	1"	1"	3/4"

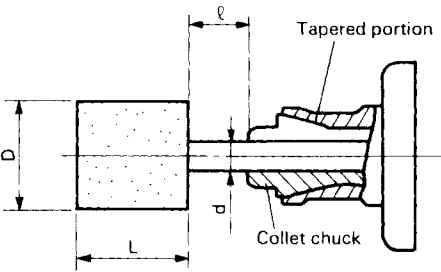


Fig. 2

Wheels can be simply attached and detached by using two wrenches. (Fig. 3)

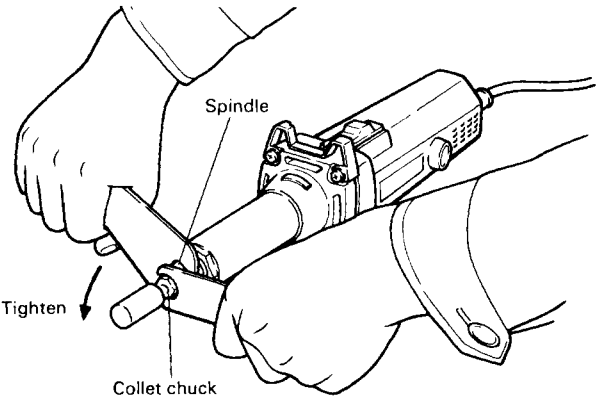


Fig. 3

NOTE:

1. Do not tighten the collet chuck by inserting a shaft thinner than the regular shaft diameter (1/4") in the chuck or in an empty condition. This practice will damage the collet chuck.
2. When installing a wheel with shaft, tighten the collet chuck after applying a small quantity of spindle oil (or sewing machine oil) to the tapered portion indicated in Fig. 2.

HOW TO USE**1. Switching operation**

- (1) When throwing the switch lever to the right (ON side), power is applied; when throwing it to the left (OFF side), power is switched off.
- (2) When first throwing the switch after installing a new wheel, avoid personal proximity to the wheel revolving circumference to avoid danger of a possible imperfection.
- (3) Before starting, test the machine with the wheel pointed in a safe direction.

2. Precautions on operation

- (1) Lightly press the wheel to the material to be ground when grinding materials, high-speed revolution is necessary. Use a hand grinder with high-speed revolution, minimizing the pressing force.

- (2) Dressing the wheel

After attaching a wheel, correct deflection of the wheel center by using a dresser.

If the wheel center is eccentric, not only precise finishing cannot be achieved but also grinder vibration increases, lowering grinder accuracy and durability.

A clogged or worn wheel will soil the finishing surface or lower grinding efficiency. Occasionally dress the wheel by applying the dresser.

WHEEL SELECTING METHOD

Types of wheel are varied according to the materials to be ground. Select a wheel appropriate for the material to be ground.

The following table is an outline of wheel and materials to be ground.

Materials to be ground	Grain	Grading	Bonding degree	Structure	Bonding agent
Milde steel, hard steel, forged steel	WA	60 ~ 80	P	m	V
Cast iron	C	36	M - O	m	v
Brass, bronze, aluminum	C	36	J - K	m	V
Ceramic	WA	60 ~ 80	M	m	V
Synthetic resin	C	36	K - M	m	V

MAINTENANCE AND INSPECTION**CAUTION:**

Be sure to disconnect the plug during maintenance and inspection.

1. Inspecting the wheel

Ensure that the wheel is free of cracks and surface defects.

2. Inspecting the mounting screws

Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loose, retighten them immediately. Failure to do so could result in serious hazard.

3. Inspecting the carbon brushes (Fig. 4)

The motor employs carbon brushes which are consumable parts. Since an excessively worn carbon brush could result in motor trouble, replace a carbon brush with a new one which has the same carbon brush No. shown in the figure when it becomes worn to or near the "wear limit". In addition, always keep carbon brushes clean and ensure that they slide freely within the brush holders.

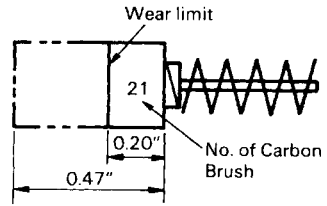


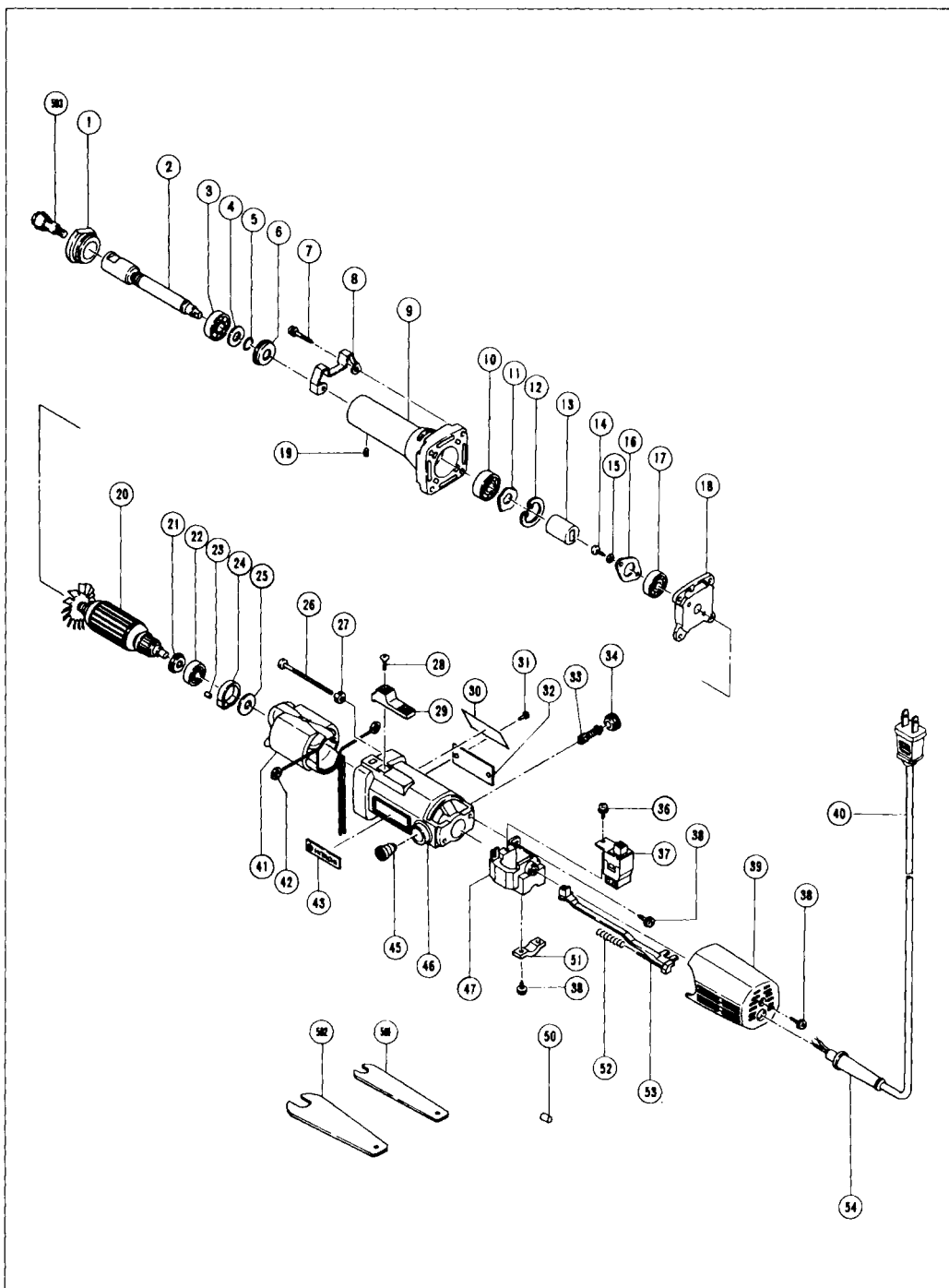
Fig. 4

4. Replacing a carbon brush

Disassemble the brush cap with a minus-head screwdriver. The carbon brush can then be easily removed.

NOTE:

Due to HITACHI's continuing program of research and development, the specifications herein are subject to change without prior notice.



Item No.	Parts Name
1	Bearing Lid (B)
2	Spindle
3	Ball Bearing (6001VVCMP5Z-L)
4	Washer (B)
5	Ring
6	Washer (A)
7	⊕ Hd. Tapping Screw M5 × 25
8	Guard Plate (B)
9	Nose Bracket Ass'y
10	Ball Bearing (6000VVCMP52-L)
11	Wave Washer
12	C-Type Retaining Ring
13	Coupling
14	⊕ Hd. Machine Screw M4 × 10
15	Spring Lock Washer
16	Bearing Cover
17	Ball Bearing (608VVCZPS2-L)
18	Inner Cover (B)
19	Hexagon Socket Hd. Set Screw M4 × 4
20	Armature Ass'y
21	Washer (A)
22	Ball Bearing (626VVCZPS2-L)
23	Bearing Lock
24	Bearing Bush
25	Stop Plate
26	Hexagon Hd. Tapping Screw M4 × 70
27	Special Washer
28	⊕ Flat Hd. Screw M4 × 12
29	Slide Switch Knob (B)
30	Caution Plate
31	Rivet D2.5 × 2.8
32	Name Plate
33	Carbon Brush
34	Brush Cap
36	⊕ Hd. Tapping Screw M4 × 12
37	Slide Switch
38	⊕ Hd. Tapping Screw M4 × 16
39	Tail Cover
40	Cord
41	Stator Ass'y

Item No.	Parts Name
42	Brush Terminal Ass'y
43	HITACHI Label
45	Brush Holder
46	Housing Ass'y
47	Switch Holder
50	Tube (D)
51	Cord Clip
52	Spring
53	Slide Bar
54	Cord Armor
501	Wrench 12mm
502	Wrench 17mm
503	Collet Chuck

Parts are subject to possible modification without notice due to improvements.

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